

CLAIMS

1. An amine hardener for an epoxy resin comprising an amine adduct (A) and a low molecular weight amine compound (B) as major components, wherein the molecular weight distribution of the amine adduct (A), which is defined by the ratio of the weight average molecular weight and the number average molecular weight, is 3 or lower, and the content of the low molecular weight amine compound (B) is 0.001 to 1 part by mass, based on 100 parts by mass of the amine adduct (A).
2. The hardener according to claim 1, wherein it is in solid state at 25°C.
3. The hardener according to claim 1 or 2, wherein said amine adduct (A) is obtained by a reaction between an epoxy resin (a1) and an amine compound (b1).
4. The hardener according to any one of claims 1 to 3, wherein said low molecular weight amine compound (B) is imidazoles.
5. An epoxy resin composition, comprising: a microcapsule type hardener (D) for an epoxy resin comprising a core and a shell, wherein said core comprising at least one kind of a hardener (C) for an epoxy resin selected from the group consisting of the hardeners according to the claims 1 to 4, and said shell containing a synthetic resin or an inorganic oxide, and comprising said microcapsule type hardener (D) for an epoxy resin covering said core and 10 to

50000 parts by mass of an epoxy resin (E), based on 100 parts by mass of said microcapsule type hardener (D), and in a master batch type hardener (F) for an epoxy resin, wherein said microcapsule type hardener (D) is dispersed in said epoxy resin (E), wherein a highly soluble epoxy resin (G), having a solubility parameter of 8.900 to 12.00, and a molecular weight between crosslinked points after hardening of 105 to 150, is contained in an amount of not lower than 0.1% by weight, based on the epoxy resin (E), and total chlorine amount of said master batch type hardener (F) for an epoxy resin is not higher than 2000 ppm.

6. The epoxy resin composition according to claim 5, wherein said highly soluble epoxy resin (G) has impurity components at the diol terminals equivalent to 0.001 to 30% of fundamental structure component of said highly soluble epoxy resin.

7. The epoxy resin composition according to claim 5 or 6, wherein the total chlorine amount of said epoxy resin (E) is not higher than 2000 ppm.

8. The epoxy resin composition according to any one of claims 5 to 7, wherein said microcapsule type hardener (D) for an epoxy resin is composed of a core comprising at least one kind of a hardener (C) for an epoxy resin, selected from the group consisting of the hardeners according to claims 1 to 4, which is covered with a shell comprising a coating film (c1) yielded by a reaction between an isocyanate compound (H) and an

active hydrogen compound (I) and/or a coating film (c2) yielded by a reaction between the hardener (C) for an epoxy resin and the epoxy resin (E), and is one having a bonding group (x) absorbing infrared ray in a wave number region of 1630 to 1680 cm^{-1} , and a bonding group (y) absorbing infrared ray in a wave number region of 1680 to 1725 cm^{-1} , at least at the surface.

9. An epoxy resin composition comprising 100 parts by mass of an epoxy resin (J) and 0.1 to 100 parts by mass of an amine hardener comprising at least one kind of a hardener selected from the group consisting of the hardeners according to any one of claims 1 to 8, as major components.

10. The epoxy resin composition according to any one of claims 5 to 10, comprising 1 to 200 parts by mass of at least one kind of a hardener (K) selected from the group consisting of acid anhydrides, phenols, hydrazides and guanidines, based on 100 parts by mass of said epoxy resin (E).

11. The epoxy resin composition according to any one of claims 4 to 10, comprising the microcapsule type hardener (D) for an epoxy resin, the epoxy resin (E) and a cyclic borate ester compound (L).

12. The epoxy resin composition according to any one of claims 4 to 11, wherein said cyclic borate ester compound (L) is 2, 2'-oxybis(5,5'-dimethyl-1,3,2-dioxaborinane).

13. The epoxy resin composition according to any

one of claims 4 to 12, wherein the formulation amount of said cyclic borate ester compound (L) is 0.001 to 10 parts by mass, based on 100 parts by mass of said epoxy resin (E).

14. Anisotropic conductive material characterized by containing the epoxy resin composition according to any one of claims 4 to 13.

15. A film for bonding characterized by containing the epoxy resin composition according to any one of claims 4 to 13.

16. Paste for bonding a semiconductor characterized by containing the epoxy resin composition according to any one of claims 4 to 13.

17. Sealant characterized by containing the epoxy resin composition according to any one of claims 4 to 13.

18. Structural adhesives characterized by containing the epoxy resin composition according to any one of claims 4 to 13.